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EUROPEAN PATENT APPLICATION

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57) A random lottery computer which can be pre-programmed for various lottery markets is provided. Lotteries vary in the number of selections to be made, the range for each selection and whether the selections are single digit or double digit. A microprocessor (T15A) controlled system, with random number generation, is programmed for these various lottery parameters by a set of hard-wired jumpers (J1, J2, J3) and by a game selection switch (18A', 18B'). The hard-wired jumpers (J1, J2, J3) are preset for a particular lottery market while the game selector switch (18A', 18B') allows the player to select the chosen game within that market. The lottery computer may be battery (32) powered or light (photocell 12) powered. Provision is made (34) for initializing the microprocessor (T15A) when power is first applied. Power is also disconnected after a given interval.

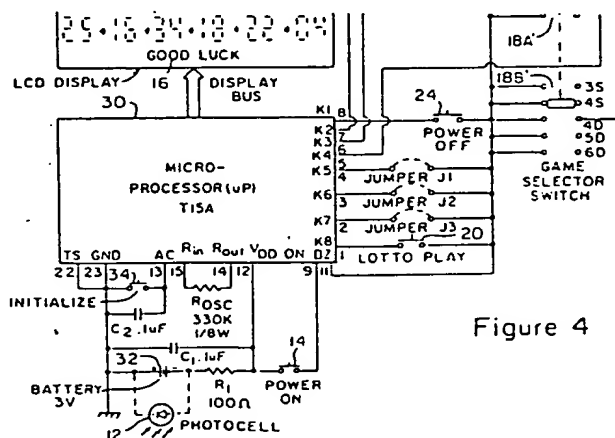


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"RANDOM LOTTERY COMPUTER"

BACKGROUND OF THE INVENTION

Field of the Invention

5 The present invention relates generally to
number generating devices and, more specifically, to
electronic computing devices which generate random
numbers appropriate to the playing parameters of
various lottery games.

Description of the Prior Art

10 There are many situations in which it is
desirable to be able to select numbers at random.
One major application is in the selection of lottery
numbers. Different lotteries require varied
selections of numbers. Numbers are most commonly
15 selected individually or in pairs (i.e. 3-5-7 or
62-45-72-13); in varied clusters (i.e. three pairs

31-18-14, five pairs 12-11-43-23-54); and with different ranges for each individual number or pair (i.e. 0-9, 01-99). At the present state of the art there are no easy-to-use lightweight devices which can perform this function. Lottery selections made by simply thinking of a number are hardly random since the chooser's prior experiences and prejudices will interfere with randomness. Many of the organizations which run lotteries still use the process of selecting marked balls from a tumbler to obtain randomness. General purpose computers may be programmed with random number generating algorithms for this purpose, however they are heavy, expensive and this application wastes their computing power.

A number of efforts have been made to provide random number selector systems; however, each has severe shortcomings. R.C. Lawlor (U.S. Patent 3,612,845) provided a computer utilizing random pulse trains. In this circuit, noise signals from a diode and clock pulses from a clock pulse source are fed to input legs of a logic circuit such as an AND gate, causing pulses of various amplitudes to appear in the output of the circuit. Complex threshold circuits are then required to eliminate low level pulses leaving high level random pulses. Only one random output at a time is provided. S. Harrington et. al (U.S. Patent 4,151,404) provided a random digit

generator which samples a random pulse output,
displays that output, determines a second random
number and adds it to the first and displays it.
This system is clearly unsuitable for the present
5 purpose because each output is inherently greater
than the previous output and, therefore, while the
first output is truly random, each succeeding output
is not truly random. T. Newman, (U.S. Patent
4,227,064), provided a lottery generating method and
10 apparatus which requires a user to depress one
pushbutton for each numeral to be randomly selected,
whereas one pushbutton is clearly preferable. Also,
each number is chosen independently of all previous
choices; however, in most lotteries, no number may be
15 selected twice.

SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide a random lottery computer which provides a visual display of any number of randomly selected 5 numbers made independent of any other selection and which may be powered by a battery or solar cell.

It is another object according to the present invention to provide a random lottery computer which is simple in design, inexpensive in cost and reliable in 10 operation.

Other objects and features of the present invention will become apparent from the following detailed description considered in connection with the accompanying claims which disclose the embodiments of the invention.

15 In the drawings wherein similar reference characters denote similar elements throughout the several views:

BRIEF DESCRIPTION OF THE DRAWING FIGURES

The figures in the drawings are briefly described as follows:

Figure 1 is a perspective view of a battery
5 powered embodiment of the invention.

Figure 2 is a perspective view of a light
powered embodiment of the invention.

Figure 3 is an enlarged detail partial view
of an embodiment in which single digit and double
10 digit games may be played.

Figure 4 is an electronic schematic diagram
of the embodiment illustrated in Figure 3.

Figure 5 is a table of data which
illustrates the games which are possible with one
15 typical embodiment of the invention illustrated in
Figures 3 and 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The invention 10 is illustrated in figures 1 and 2 which are identical except for their power sources. The invention 10 is powered by an internal battery in figure 1 and by a solar cell 12 in figure 2. In operation, when power on switch 14 is depressed, the display which reads GOOD LUCK, (numeral 16) flashes. The game is then selected by sliding game selector switch 18 to the appropriate position. In figures 1 and 2, game selector switch 18 points to the "6" game thereby selecting a game to be played with "6" pairs of digits (i.e. 25-16-34-18-22-04). When lotto play button 20 is depressed the actual randomly selected number is displayed in LCD display 22 until power off switch 24 is depressed or until some pre-determined time interval has been reached.

The complete operation of an embodiment of invention 10, in which both single and double digit games may be played, is best understood with reference to figures 3 and 4. When power on switch

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14 is depressed T15A microprocessor (numeral 30) "on" input at pin 9 is activated and power from battery 32 is applied to microprocessor 30 V_{DD} terminal at pin 12. This causes GOOD LUCK display 16 to flash. When
5 battery 32 is first installed or changed, initialize switch 34 must be depressed in order to initialize or re-initialize microprocessor 30. If solar power is desired, photocell 12 is substituted for battery 32.

The game to be played must now be selected.
10 This is accomplished by a system which includes three hard-wired Jumpers J1, J2 and J3 and game selector switch 18' which is a double pole five throw selector switch with sections 18A' and 18B'. The combination of jumpers and switch selections comprise a selection
15 matrix which, via terminals K1, K2, K3, K4, K5, K6, K7 and K8 (pins 8,7,6,5,4,3,2 and 1 respectively) instructs microprocessor 30 as to which game is to be played. The complete range of game possibilities is fixed programmed into microprocessor 30, and from
20 this entire set of possibilities, the range of the player's selection is further limited by the presence or absence of jumpers J1, J2, or J3. This configuration thereby defines the range of each selection, the number of selections to be made, and
25 whether the selection are single digit or double digit. The entire choice set and possible subsets

will be described below. The rate at which random numbers are selected is determined by the clock rate of microprocessor 30 which is in turn determined by oscillator resistor R_{osc} . In this embodiment, the
5 player may select from any of five games: a three selection single digit game (3S), a four selection single digit game (4S), a four selection double digit game (4D), a five selection double digit game (5D) and a six selection double digit game (6D). These
10 game selections are labelled on game selector switch 18'.

The possible games for this particular embodiment are best understood with reference to figure 5. The presence or absence of jumpers J1, J2
15 and J3 allows for eight different jumper settings where the presence of a jumper is represented as "ON" and the absence of a jumper is represented by "OFF". A typical jumper setting might be ON-OFF-OFF. This is highlighted by an arrow. The five game
20 possibilities already described each have numerical ranges for each selection of jumpers and game selector switch 18' settings. For example, consider the case where the jumper settings are ON-OFF-OFF and game selector switch 18' is set for a double digit
25 game with five selections. The range (circled) is for each pair selected to range between 01 and 41. A

possible outcome, then, would be: 03-15-41-18-01.
The invention 10, could, therefore be programmed so
that each possible jumper setting represents one
lottery market.

5 While certain novel features of this
invention have been shown and described and are
pointed out in the annexed claims, it will be
understood that various omissions, substitutions and
changes in the forms and the details of the device
10 illustrated and in its operation can be made by those
skilled in the art without departing from the spirit
of the invention.

What is claimed is:

1. A random lottery computer, comprising in combination:

a) a microprocessor which generates numbers randomly, but without repetition, according to information contained in a data input matrix;

b) a numeric display; and,

c) an electrical power source.

2. A random lottery computer, as recited in Claim 101, wherein said numeric display is either a liquid crystal, a light emitting diode or a fluorescent display.

3. A random lottery computer, as recited in Claim 1, wherein said electrical power source is either a battery or a photocell.

15 4. A random lottery computer, as recited in Claim 1, wherein said data input matrix comprises at least one hard wired jumper and an n-throw game selector switch wherein n is at least two; whereby said wired jumpers define the fixed range of digits which are to be randomly selected
20 in each single digit and double digit game; and, whereby said game selector switch selects the particular game to be played.

5. A random lottery computer, as recited in Claim 1, further comprising a power-on switch which applies power to said numeric display and to said microprocessor; wherein said microprocessor automatically turns said power off after a predetermined period of time.

6. A random lottery computer, as recited in Claim 1, further comprising a power-off switch which removes said power from said numeric display and said microprocessor when depressed.

10 7. A random lottery computer, as recited in Claim 1, further comprising an initialize switch which is activated whenever said power source is interrupted in order to re-initialize said microprocessor.

8. A random lottery computer, as recited in Claim 15 1, further comprising a lotto play switch which executes the actual random number selection.

9. A random lottery computer, as recited in Claim 11, further comprising an alpha-numeric display which flashes until said lotto play switch is activated.

20 10. A random lottery computer, as recited in Claim 1, further comprising an oscillator resistor which determines the clock rate of said microprocessor thereby determining the rate at which said random numbers are selected.

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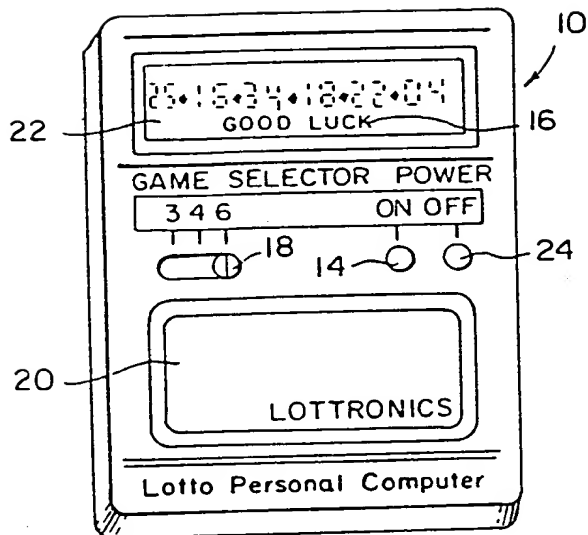


Figure 1

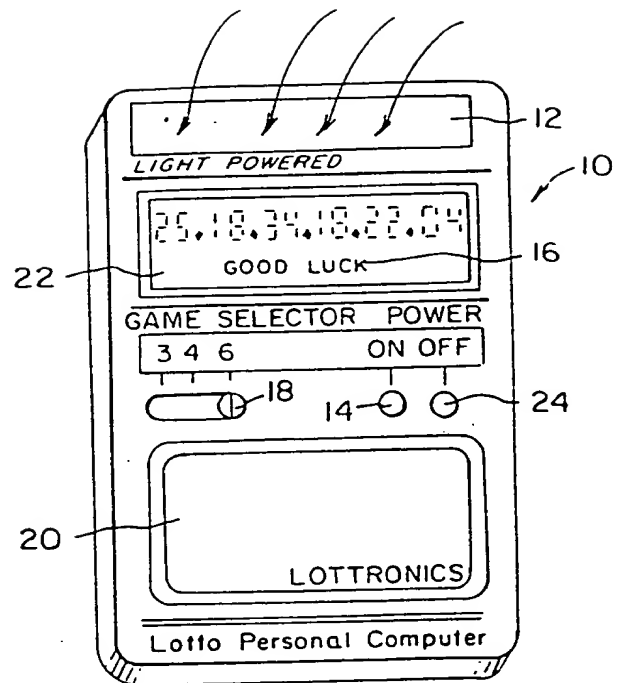


Figure 2

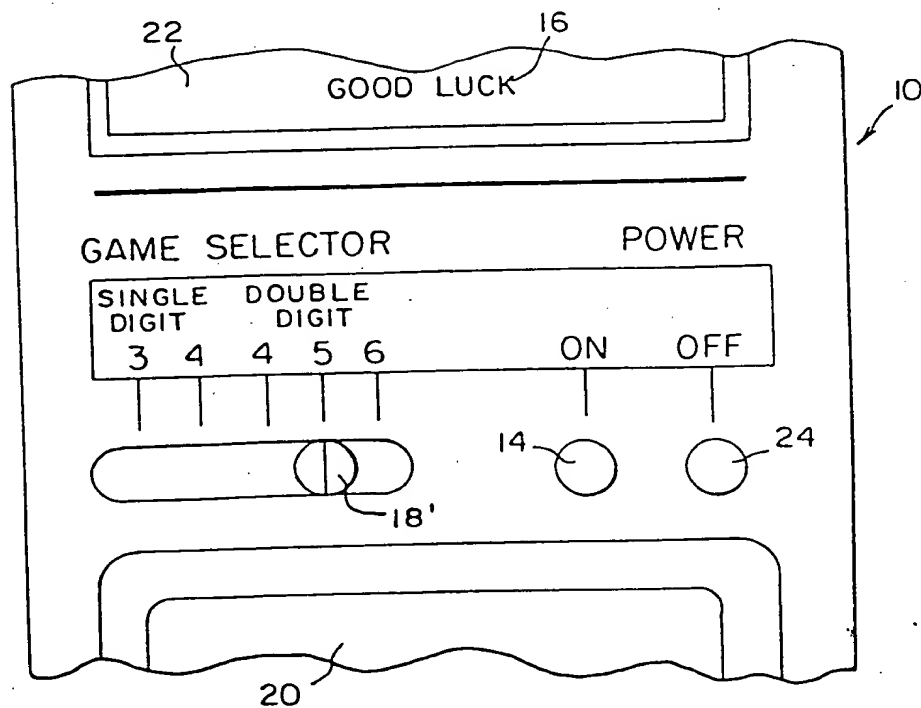


Figure 3

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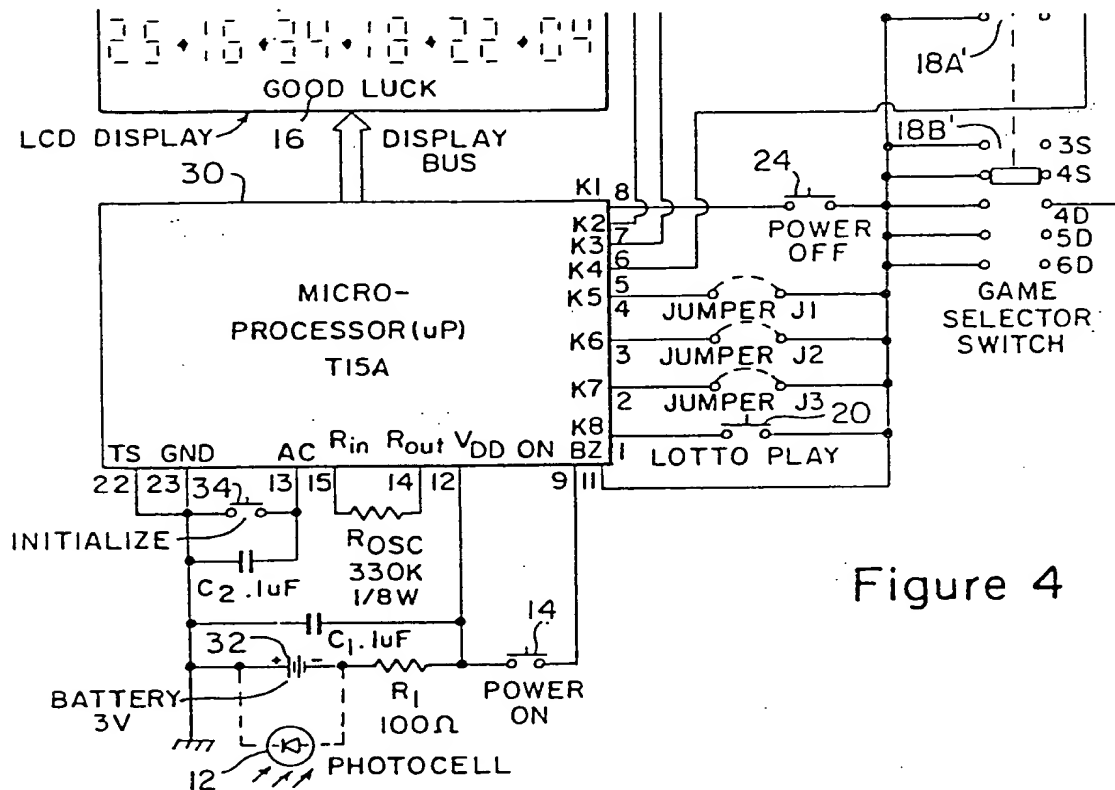


Figure 4

LOTTO COMPUTER GAME TABLE

JUMPER SETTINGS			DOUBLE DIGIT GAME			SINGLE DIGIT GAMES	
J1	J2	J3	6 PAIRS	5 PAIRS	4 PAIRS	4 SINGLE DIGITS	3 SINGLE DIGITS
ON	ON	ON	01-30	01-35	01-36	0-9	0-9
ON	ON	OFF	01-36	01-37	01-30	0-9	0-9
ON	OFF	ON	01-39	01-40	01-39	0-9	0-9
ON	OFF	OFF	01-40	01-41	01-42	0-9	0-9
OFF	ON	ON	01-42	01-45	01-40	0-9	0-9
OFF	ON	OFF	01-44	01-50	01-47	0-9	0-9
OFF	OFF	ON	01-49	01-90	01-44	0-9	0-9
OFF	OFF	OFF	01-49	01-100	01-50	0-9	0-9
			RANGE FOR EACH PAIR OF DIGITS			RANGE FOR EACH DIGIT	

EXAMPLE: JUMPER SETTING: ON-OFF-OFF

GAME SELECTOR SWITCH:

DOUBLE DIGIT, FIVE SELECTIONS

POSSIBLE OUTCOME: 03-15-41-18-01

Figure 5